WHAT IS CLAIMED IS:

1. A reaction wheel assembly and fiber optic gyro device, comprising:

a reaction wheel assembly having a reaction wheel assembly housing;

a fiber optic gyro coil integrated with the reaction wheel assembly housing; and

a fiber optic gyro electronics integrated with the reaction wheel assembly housing.

2. The device of claim 1, wherein the fiber optic coil has substantially the same diameter as a diameter of the reaction wheel assembly housing.

3. The device of claim 2, wherein the fiber optic coil is wound around the reaction wheel assembly housing.

4. The device of claim 1, wherein the fiber optic gyro electronics are located in a base portion of the reaction wheel assembly housing.

5. The device of claim 1, wherein the device is calibrated based on wheel speed feedback of the reaction wheel assembly to filter gyro output to account for motion introduced by the reaction wheel assembly.

6. The device of claim 1, wherein the fiber optic gyro electronics comprise:

a light source

a fiber optic coupler;

a spatial filter;

a detector;

a polarizer; and

a phase modulator.

7. An attitude reference system, comprising a plurality of reaction wheel assembly and fiber optic gyro devices as claimed in claim 1.

8. The attitude reference system of claim 6, comprising four reaction wheel assembly and fiber optic gyro devices as claimed in claim 1.

9. The device of claim 1, wherein the fiber optic coil comprises fused silica of about 80 or 125 micrometers in diameter.

10. The device of claim 6, wherein the light source emits light in the near-infrared region.

11. The device of claim 10, wherein the light-source emits light having a wavelength of between about 0.83 micrometers and about 1.55 micrometers.

12. The device of claim 1, wherein the fiber optic gyro coil is located within the reaction wheel assembly housing.